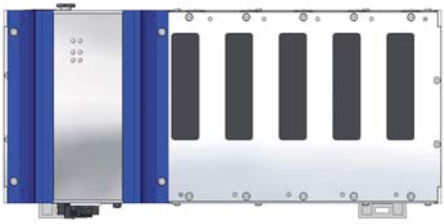
HIRSCHMANN
A BELDEN BRAND

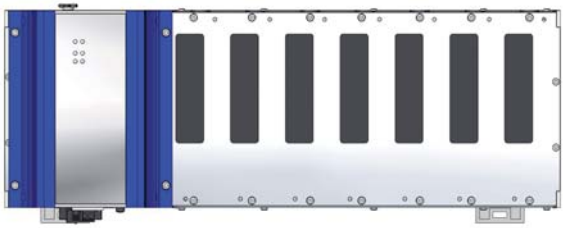
User Manual

Installation
MICE Switch Power
MSP30/32

MSP30/MSP32-0804...



MSP30/MSP32-1604...



MSP30/MSP32-2404...

04001400103111 3000

The naming of copyrighted trademarks in this manual, even when not specially indicated, should not be taken to mean that these names may be considered as free in the sense of the trademark and tradename protection law and hence that they may be freely used by anyone.

© 2013 Hirschmann Automation and Control GmbH

Manuals and software are protected by copyright. All rights reserved. The copying, reproduction, translation, conversion into any electronic medium or machine scannable form is not permitted, either in whole or in part. An exception is the preparation of a backup copy of the software for your own use. For devices with embedded software, the end-user license agreement on the enclosed CD/DVD applies.

The performance features described here are binding only if they have been expressly agreed when the contract was made. This document was produced by Hirschmann Automation and Control GmbH according to the best of the company's knowledge. Hirschmann reserves the right to change the contents of this document without prior notice. Hirschmann can give no guarantee in respect of the correctness or accuracy of the information in this document.

Hirschmann can accept no responsibility for damages, resulting from the use of the network components or the associated operating software. In addition, we refer to the conditions of use specified in the license contract.

You can get the latest version of this manual on the Internet at the Hirschmann product site (www.hirschmann.com).

Printed in Germany
Hirschmann Automation and Control GmbH
Stuttgarter Str. 45-51
72654 Neckartenzlingen
Deutschland
Tel.: +49 1805 141538

Contents

Safety instructions 5

About this manual 12

Key 12

1 Description 13

1.1 General device description 13

1.2 Device name and product code 14

1.3 Combination options 19

1.4 Device views 20
1.4.1 Front view 20
1.4.2 View from below 21
1.4.3 View from above 22

1.5 Number of ports and connections 23

1.6 Power supply 25
1.6.1 Operating voltage characteristic value C 25
1.6.2 Operating voltage characteristic value P 25

1.7 Display elements 25
1.7.1 Device state 25
1.7.2 Digital input 26

1.8 Management interfaces 27
1.8.1 V.24 interface (external management) 27
1.8.2 SD card interface 28
1.8.3 USB interface 28

1.9 Input/output interfaces 29
1.9.1 Signal contact 29
1.9.2 Digital input 29

2 Installation 30

2.1 Unpacking and checking the content of the package 30

2.2 Installing the SD card (optional) 30

2.3 Installing and grounding the device 31
2.3.1 Installing the device onto the DIN rail 32
2.3.2 Grounding the device 32

2.4 Connecting the terminal blocks 33
2.4.1 Operating voltage characteristic value C 33
2.4.2 Operating voltage characteristic value P 34

2.4.3 Signal contact 36
2.5 Connecting the ferrite 36
2.6 Installing terminal blocks, switching on the supply voltage 37
2.7 Installing media modules 37

3 Basic Settings 39

4 Maintenance and service 40

5 Disassembly 41

5.1 Removing media modules 41
5.2 Removing the device 42

6 Technical data 43

A Further Support 57

Safety instructions

Certified usage

Only use the device for application cases that are described in the Hirschmann product information, including this manual. Only operate the device according to the technical specifications.

Supply voltage

☐ Solely connect a supply voltage that corresponds to the type plate of your device.

☐ For **every** supply voltage to be connected, make sure the following requirements are met:

- The power supply conforms to overvoltage category I or II.
- The voltage supply has an easily accessible disconnecting device (e.g. a switch or a plug). This disconnecting device is clearly identified so that in the case of an emergency, it is clear which disconnecting device belongs to which line.
- The disconnecting device is clearly identified so that in the case of an emergency, it is clear which disconnecting device belongs to which line.
- The lines to be connected are voltage-free.
- A fuse suitable for DC voltage is located in the plus conductor of the power supply.
  Regarding the properties of this fuse: See “General technical data” on page 43.
- A fuse suitable for DC voltage is located in the minus conductor of the supply voltage, if this is not grounded.
  Regarding the properties of this fuse: See “General technical data” on page 43.
- The wire diameter for the input supply line is at least 1 mm² (North America: AWG16).

- ▶ The connection cables used are permitted for the specified temperature range.
- ▶ Relevant for North America:
  The supply voltage lines are made of copper wire, which is suitable for ambient temperatures of up to at least 167 °F (75 °C).

☐ Only start connecting the supply voltage if **all** the above requirements are fulfilled.
☐ Use undamaged parts.
☐ The device does not contain any service components. Internal fuses are only triggered if there is a fault in the device. If the device is not functioning correctly, or if it is damaged, switch off the voltage supply and return the device to the plant for inspection.
☐ Only switch on the supply voltage for the device when the following prerequisites are fulfilled:
- ▶ The housing is closed
- ▶ The terminal blocks are wired correctly
- ▶ The terminal blocks for the voltage supply are connected

Note: The supply voltage is only connected with the chassis via protective elements.

Shielded ground

The shielded ground wire of the twisted pairs lines is connected to the front panel as a conductor.
☐ Beware of possible short circuits when connecting a cable section with conductive shield braiding.

Housing

Only technicians authorized by the manufacturer are permitted to open the housing.
☐ The switch basic module is an inseparable unit. The switch basic module may be damaged by detachment of the display and connection part.
☐ Keep the ventilation slits free to ensure good air circulation.
☐ Make sure there is at least 3.94 inches (10 cm) of space in front of the ventilation slits of the housing.
☐ Never insert sharp objects (small screwdrivers, wires, etc.) into the inside of the device.
☐ Never insert sharp objects (small screwdrivers, wires, etc.) into the connection terminals for the supply voltage or the signal contact, and do not touch the terminals!
☐ If you are operating the device in a living area or office environment, only operate it in switch cabinets with fire protection characteristics in accordance with EN 60950-1.

Environment

Only operate the device at the specified ambient temperature (temperature of the ambient air at a distance of up to 2 inches (5 cm) from the device) and at the specified relative humidity.
See “Technical data” on page 43.

- ☐ When you are selecting the installation location, make sure you observe the climatic threshold values specified in the technical data.
- ☐ Use the device in an environment with a maximum pollution degree that complies with the specifications in the technical data.

Qualification requirements for personnel

Qualified personnel as understood in this manual and the warning signs, are persons who are familiar with the setup, assembly, startup, and operation of this product and are appropriately qualified for their job. This includes, for example, those persons who have been:

- ▶ trained or directed or authorized to switch on and off, to ground and to label power circuits and devices or systems in accordance with current safety engineering standards;
- ▶ trained or directed in the care and use of appropriate safety equipment in accordance with the current standards of safety engineering;
- ▶ trained in providing first aid.

General safety instructions

This device is operated by electricity. You must follow precisely the prescribed safety requirements for the voltage connections in this document.

Non-observance of these safety instructions can cause material damage and/or injuries.

- ▶ Only appropriately qualified personnel should work on this device or in its vicinity. The personnel must be thoroughly familiar with all the warnings and maintenance procedures outlined in this operating manual.
- ▶ The proper and safe operation of this device depends on proper handling during transportation, proper storage and assembly, and conscientious operation and maintenance procedures.
- ▶ Never start operation with damaged components.
- ▶ Only use the devices in accordance with this manual. In particular, observe all warnings and safety-related information.
- ▶ Any work that may be required on the electrical installation may only be carried out by personnel trained for this purpose.

Note: LED or LASER components in compliance with IEC 60825-1 (2007):
CLASS 1 LASER PRODUCT
CLASS 1 LED PRODUCT

Note: You will find additional warning and safety information in the “User Manual for Installation of MSM20/24/40/42” supplied with every media module.

National and international safety regulations

☐ Make sure that the electrical installation meets local or nationally applicable safety regulations.

CE marking

The labeled devices comply with the regulations contained in the following European directive(s):

2011/65/EU (RoHS)
Directive of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

2004/108/EC (EMC)
Directive of the European Parliament and the council for standardizing the regulations of member states with regard to electromagnetic compatibility.

In accordance with the above-named EU directive(s), the EU conformity declaration will be at the disposal of the relevant authorities at the following address:

Firmenname lang
Stuttgarter Str. 45-51
72654 Neckartenzlingen
Deutschland
Tel.: +49 1805 141538

The device can be used in the industrial sector.
- Interference immunity: EN 61000-6-2
- Emitted interference: EN 55022
- Reliability: EN 60950-1

You will find more information on norms and standards here:
“Technical data” on page 43.

Warning! This is a class A device. This device can cause interference in living areas, and in this case the operator may be required to take appropriate measures.

Note: The assembly guidelines provided in these instructions must be strictly adhered to in order to observe the EMC threshold values.

Relevant for Use as Industrial Control Equipment (according to the Standards UL508 / CSA C22.2 No. 142-1987)

When using the MSP30/32 devices as industrial control equipment the following restrictions apply:
Max. surrounding air temperature: +60 °C
(... to apply for operating temperature characteristic values S, T or E)
Use Copper Conductors only.
Temperature rating of field installed conductors:
Use 75 °C conductors only.
For use in Polution Degree 2 Environment only.
Digital Output - Relay (Fault): max. 30 V DC, 1 A, resistive load.

Relevant for use in Ex Zone 2 according to ATEX 95 (European directive 94/9/EC):

In Ex zone 2, solely the devices with a corresponding label may be operated.
When operating the MSP30/32 devices in Ex zone 2, the following applies:

II 3G
Ex nA IIC T4 Gc
Ta: −40 °C ... +158 °F (−40 °C ... +70 °C) for temperature range characteristic value T and E
Ta: +32 °F ... +140 °F (0 °C ... +60 °C) for temperature range characteristic value S
DEKRA 13ATEX0090 X

Temperature code T4	
List of standards:	EN 60079-0: 2012
	EN 60079-15: 2010

DO NOT OPEN THE DEVICE WHEN IT IS ELECTRICALLY CHARGED.
THE USB CONNECTOR MUST NOT BE USED WHEN THE DEVICE IS OPERATED IN EXPLOSIVE HAZARDOUS LOCATIONS.

Special conditions for safe use

- ☐ Install the modules in a suitable enclosure providing a degree of protection of at least IP54 according to EN 60529, taking into account the environmental conditions under which you use the equipment.
- ☐ When the temperature under rated conditions exceeds 70 °C on the cable or at conduit entry point, or 80 °C at the branching point of the conductors, verify that the temperature specification of the selected cable is in compliance with the actual measured temperature values.
- ☐ Make provisions to prevent the voltage of the rated voltage connections from excess due to transient disturbances of the 119 V threshold.

FCC note

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference; (2) this device must accept any interference received, including interference that may cause undesired operation.

Appropriate testing has established that this device fulfills the requirements of a class A digital device in line with part 15 of the FCC regulations.
These requirements are designed to provide sufficient protection against interference when the device is being used in a business environment. The device creates and uses high frequencies and can also radiate high frequencies, and if it is not installed and used in accordance with this operating manual, it can cause radio transmission interference. The use of this device in a living area can also cause interference, and in this case the user is obliged to cover the costs of removing the interference.

Recycling note

After usage, this device must be disposed of properly as electronic waste, in accordance with the current disposal regulations of your county, state, and country.

About this manual

The “Installation” user manual contains a device description, safety instructions, a description of the display, and the other information that you need to install the device.
The following manuals are available as PDF files on the CD/DVD supplied:

- Basic Configuration user manual
- User Manual Installation MSM20/24/40/42
- User Manual Installation MSP30/32
- Redundancy Configuration user manual
- Command Line Interface user manual
- Reference manual for the graphical user interface

The Industrial HiVision Network Management Software provides you with additional options for smooth configuration and monitoring:

- ActiveX control for SCADA integration
- Auto-topology discovery
- Browser interface
- Client/server structure
- Event handling
- Event log
- Simultaneous configuration of multiple devices
- Graphical user interface with network layout
- SNMP/OPC gateway.

Key

The symbols used in this manual have the following meanings:

▶	Listing
☐	Work step
■	Subheading

1 Description

1.1 General device description

You can choose from between a wide range of variants. You have the option to set up your device individually based on different criteria:

- Number of ports
- Types of connectors
- Voltage range
- Temperature range
- Transmission speed
- Certifications

The MSP30/32 devices are designed for the special requirements of industrial automation. They meet the relevant industry standards, provide very high operational reliability, even under extreme conditions, and also long-term reliability and flexibility.

The devices allow you to set up switched industrial Ethernet networks that conform to the IEEE 802.3 standard.

The devices work without a fan.
The devices are mounted very quickly by snapping them onto the DIN rail.

You have the option of choosing various media to connect to the terminal devices and other network components:

- multimode F/O
- singlemode F/O
- twisted pair cable

There are convenient options for managing the device. Administer your devices via:

- management software (such as Industrial HiVision)
- a Web browser
- a V.24 interface (locally on the device)
- HiDiscovery (Software for putting the device into operation)
- SSH
- Telnet

The devices provide you with a large range of functions, which the manuals for the operating software inform you about. You will find these manuals as PDF files on the enclosed CD/DVD, or you can download them from the Internet on the Hirschmann product pages (www.hirschmann.com).
The Hirschmann network components help you ensure continuous communication across all levels of the company.

1.2 Device name and product code

The device name corresponds to the product code. The product code is made up of characteristics with defined positions. The characteristic values stand for specific product properties.

Item	Characteristic	Characteristic value	Description	
1 ... 3	Product	MSP	MICE Switch Power	
4	Data rate	3	10 [1]/100 Mbit/s ports 10 [a]/100/1000 Mbit/s ports	
5	Hardware type	0	Standard	
		2	Suitable for PoE or PoE+	
6	(hyphen)	-		
7 ... 8	Number: 10 [a]/100 Mbit/s ports	08	8 ×	
		16	16 ×	
		24	24 ×	
9 ... 10	Number: 10 [a]/100/1000 Mbit/s ports	04	4 ×	
11	Number: 10 [a]/100/1000/10000 Mbit/s ports	0	0 ×	
12	Temperature range	S	Standard	0 °C ... +60 °C (+32 °F ... +140 °F)
		T	Extended	−40 °F ... +158 °F (−40 °C ... +70 °C)
				under UL conditions: max. +140 °F (+60 °C)
		E	Extended with conformal coating	−40 °F ... +158 °F (−40 °C ... +70 °C)
				under UL conditions: max. +140 °F (+60 °C)
13	Operating voltage	C		2 voltage inputs for redundant voltage supply
				Rated voltage range DC 24 ... 48 V
		P	PoE	2 voltage inputs for redundant voltage supply
				Rated voltage range DC 47 ... 57 V
			PoE+	2 voltage inputs for redundant voltage supply
				Rated voltage range DC 53 ... 57 V
14 ... 15	Certificates and declarations [2]	**Note:** You will find detailed information on the certificates and declarations applying to your device in a separate overview. See table 2 on page 16.		

Table 1: Device name and product code

Item	Characteristic	Characteristic value	Description
16 ... 17	Software packages	99	Reserved
		UR	Unicast Routing
		MR	Unicast + Multicast Routing
18 ... 19	Customization	HH	Hirschmann standard
20	Software configuration	E	Entry (Hirschmann standard configuration)
21 ... 22	Software level	2A	HiOS Layer 2 Advanced
23 ... 27	Software version	02.0	Software version 02.0
		XX.X	Current software version

Table 1: Device name and product code

1. Only for twisted pair connections
2. Certificates and declarations in brackets are being prepared.

Application case	Certificates and declarations	Characteristic value														
		Z9	**Y9**	**X9**	**W9**	**WY**	**V9**	**VY**	**VU**	**VT**	**T9**	**TY**	**U9**	**UY**	**UW**	**UX**
Standard applications	ATEX Zone 2				X	X									X	
	CE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EN 60950-1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EN 61131-2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	FCC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	ISA 12.12.01 – Class I, Div. 2			X												X
	UL 508		X	X		X		X	X	X		X		X	X	X
Substation applications	IEC 61850-3						X	X	X	X						
	IEEE 1613						X	X	X	X						
Navy applications	GL								X				X	X	X	X
Railway applications (trackside)	EN 50121-4									X	X	X				

Table 2: Assignment: application cases, certificates and declarations, characteristic values

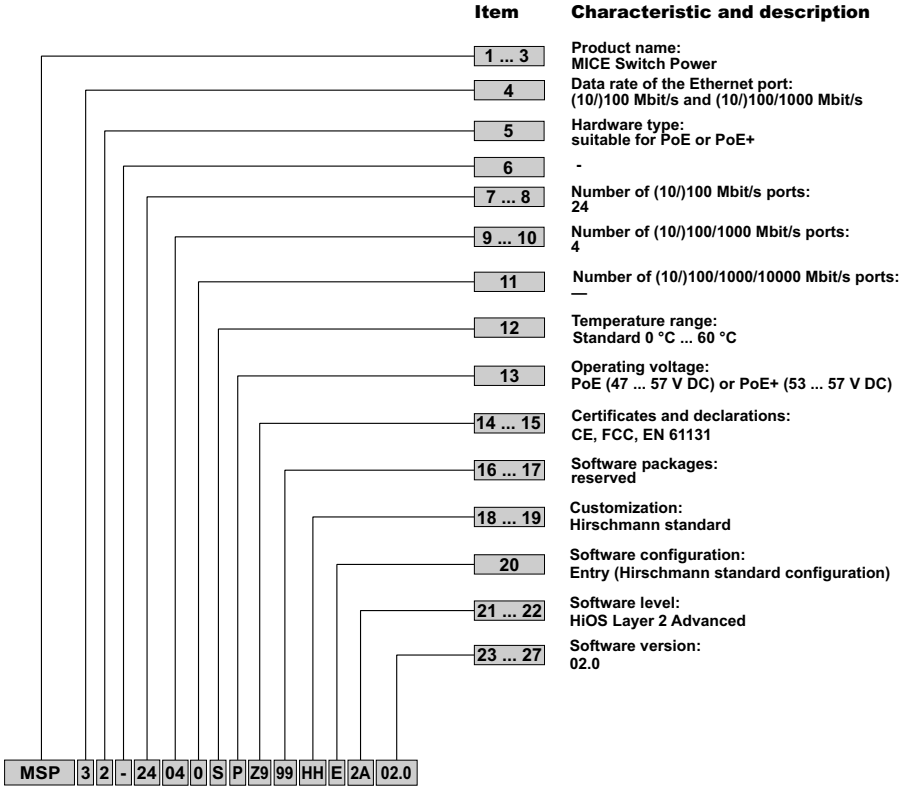


Figure 1: Example of a device name: MSP32-24040SPZ999HHE2A02.0

1.3 Combination options

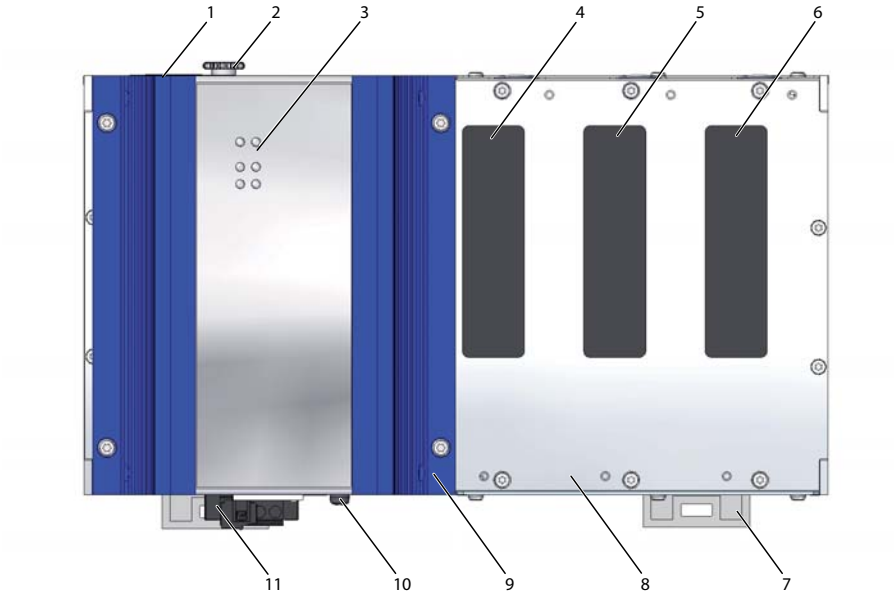
1 ... 3	4 ... 5	6	7 ... 8	9 ... 10	11	12	13	14 ... 15	16 ... 17	18 ... 19	20	21 ... 22	23 ... 27
Product name	Data rate and hardware type	-	Number 10 [1]/ 100 Mbit/s ports	Number 10 [a]/ 100/ 1000 Mbit/s ports	Number 10 [a]/100 /1000/10 000 Mbit/s ports	Temperature range	Operating voltage	Certificates and declarations	Software packages	Customization	Software configuration	Software level	Software version
MSP30/32	30	-	8, 16, 24	04	0	S; T; E	C	Z9; Y9; X9; W9; WY; V9; VY; VT; VU; T9; TY; U9; UY; UW; UX	99; UR; MR	HH	E	2A	02.0
	32	-	8, 16, 24	04	0	S; T; E	P	Z9; Y9; X9; W9; WY; V9; VY; VT; VU; T9; TY; U9; UY; UW; UX	99; UR; MR	HH	E	2A	02.0

Table 3: Combination options of the MSP30/32 device variants

1. only with twisted-pair connections

1.4 Device views

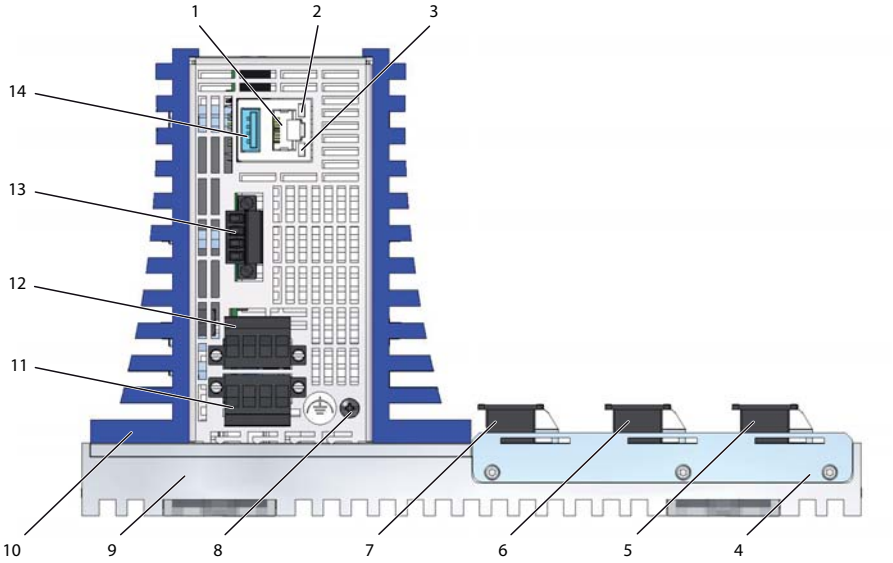
1.4.1 Front view



1	Slot for the SD card	
2	Knurled screw	
3	LED display elements for device status	
4	Slot 1 for media modules	
5	Slot 2 for media modules	
6	Slot 3 for media modules	
7	Locking gate for removing the device	
8	Backplane	(switch basic module MSP30/32)
9	Power module	(switch basic module MSP30/32)
10	Grounding screw	
11	Terminal block, V.24 port, USB port, signal contacts	

Table 4: Front view (using example MSP30/32-0804...)

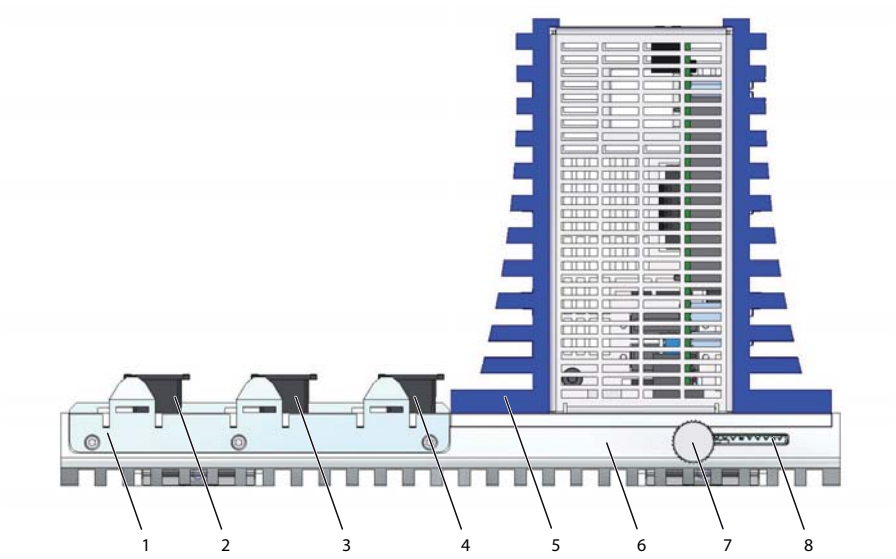
1.4.2 View from below



1	V.24 interface	
2	LED display elements (no function in the existing device version)	
3	LED display elements (no function in the existing device version)	
4	Positioning bar	
5	Slot 3 for media modules	
6	Slot 2 for media modules	
7	Slot 1 for media modules	
8	Grounding screw	
9	Backplane	(switch basic module MSP30/32)
10	Power module	(switch basic module MSP30/32)
11	Power supply connection	▶ Connection for the signal contact ▶ Low voltage input ▶ Power supply input for redundant power supply ▶ 4-pin terminal block
12	Power supply connection	▶ Connection for the signal contact ▶ Low voltage input ▶ Power supply input for redundant power supply ▶ 4-pin terminal block
13	Connection for 2 digital inputs	
14	USB interface	In software version 02.0, the device does not support the ACA21.

Table 5: View from below (using example MSP30/32-0804...)

1.4.3 View from above



1	Female multipoint connector	
2	Slot 3 for media modules	
3	Slot 2 for media modules	
4	Slot 1 for media modules	
5	Backplane	(switch basic module MSP30/32)
6	Power module	(switch basic module MSP30/32)
7	Knurled screw	
8	Slot for the SD card	

Table 6: View from above (using example MSP30/32-0804...)

1.5 Number of ports and connections

Depending on the variant, the basic modules provide you with the following number of slots for media modules and the following maximum number of connectable network segments:

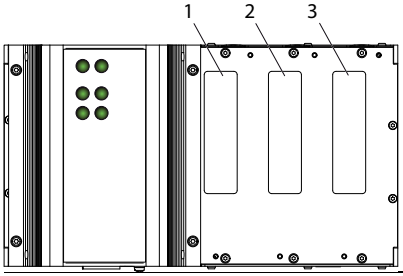
Basic module	Total number of slots	Number of slots for 10/100 Mbit/s (FE)	Number of slots for 1000 Mbit/s (GE)	Max. number of connectable 10/100 Mbit/s network segments	Max. number of connectable 1000 Mbit/s network segments
MSP30-0804... MSP32-0804...	3	2	1	12	4
MSP30-1604... MSP32-1604...	5	4	1	20	4
MSP30-2404... MSP32-2404...	7	6	1	28	4

Table 7: Number of slots and maximum connectable network segments

The maximum data rate of the media modules depends on the slot on the basic module. Some of the media modules only support data rates up to a maximum of 10/100 Mbit/s.
See “Device name and product code” on page 14.

You will find the arrangement and sequence of the slots in the basic module in the following overview:

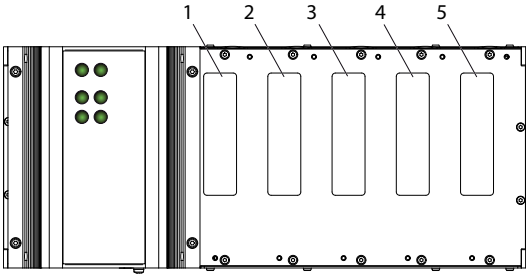
MSP30/32-0804...



1	10 [1]/100/1000 Mbit/s
2	10 [a]/100 Mbit/s
3	10 [a]/100 Mbit/s

1. solely for twisted-pair connections

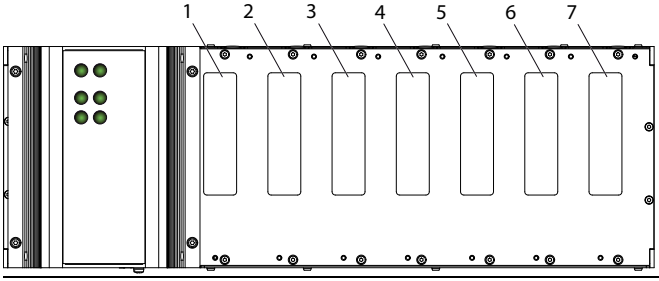
MSP30/32-1604...



1	10 [1]/100/1000 Mbit/s
2	10 [a]/100 Mbit/s
3	10 [a]/100 Mbit/s
4	10 [a]/100 Mbit/s
5	10 [a]/100 Mbit/s

1. solely for twisted-pair connections

MSP30/32-2404...



1	10 [1]/100/1000 Mbit/s
2	10 [a]/100 Mbit/s
3	10 [a]/100 Mbit/s
4	10 [a]/100 Mbit/s
5	10 [a]/100 Mbit/s
6	10 [a]/100 Mbit/s
7	10 [a]/100 Mbit/s

1. solely for twisted-pair connections

You will find more information on the media modules in the “User Manual for Installation of MSM20/24/40/42”.

1.6 Power supply

1.6.1 Operating voltage characteristic value C

For the redundant supply of the device, two 4-pin terminal blocks are available.

You will find further information under “Operating voltage characteristic value C” on page 25.

1.6.2 Operating voltage characteristic value P

For the redundant supply of the device, two 4-pin terminal blocks are available.
The MSP32 device variant supports Power over Ethernet (PoE) or Power over Ethernet Plus (PoE+).

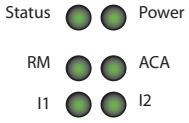
You will find further information under “Operating voltage characteristic value P” on page 34.

1.7 Display elements

After the operating voltage is set up, the software starts and initializes itself. Afterwards, the device performs a self-test. During this process, various LEDs light up.

1.7.1 Device state

These LEDs provide information about conditions which affect the operation of the whole device.



LED	Display	Color	Activity	Meaning
Power	Power supply	—	None	The supply voltage is too low.
		Yellow	Lights up	Device variants with redundant voltage supply: The supply voltages 1 **or** 2 are on.
			flashes 4 times a period	Software update is running. Maintain the voltage supply.
		Green	Lights up	Device variants with redundant voltage supply: The supply voltages 1 **and** 2 are on.
				Device variants with simple voltage supply: The supply voltage is on.
Status	Device Status	—	None	Device is starting and/or is not ready for operation.
		Green	Lights up	Device is ready for operation. Characteristics can be configured.
		Red	Lights up	Device is ready for operation. The Device detects and displays the system monitoring results when at least one unussual event occurs.
			Flashes 1 time a period	The boot parameters used when the device has been started differ from the boot parameters saved. Start the device again.
			flashes 4 times a period	Device has detected a multiple IP address.
RM	Ring Manager	—	None	No redundancy configured
		Green	Lights up	Redundancy exists
			Flashes 1 time a period	Device is reporting an incorrect configuration of the RM function.
		Yellow	Lights up	No redundancy exists
ACA	Storage medium ACA31	—	None	The storage medium ACA is not inserted.
		Green	Lights up	The storage medium ACA is inserted.
			Flashes 3 times a period	The device writes to/reads from the storage medium.
		Yellow	Lights up	The storage medium ACA is out of order.

1.7.2 Digital input

LED	Display	Color	Activity	Meaning
I1	LED display element for input	—	None	Low level input voltage
		Green	Lights up	High level input voltage
I2	LED display element for input	—	None	Low level input voltage
		Green	Lights up	High level input voltage

1.8 Management interfaces

1.8.1 V.24 interface (external management)

A serial interface is provided on the RJ45 socket (V.24 interface) for the local connection of an external management station (VT100 terminal or PC with corresponding terminal emulation). This gives you the option to set up a connection to the Command Line Interface (CLI) and to the system monitor.

VT 100 terminal settings	
Speed	9,600 Baud
Data	8 bit
Stopbit	1 bit
Handshake	off
Parity	none

The socket housing is electrically connected to the front panel of the device. The V.24 interface is electrically insulated from the supply voltage.

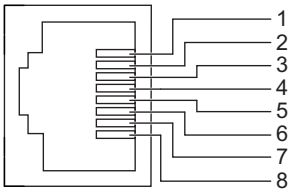
Figure	Pin assignment	Function
	1	—
	2	—
	3	TX
	4	GND
	5	—
	6	RX
	7	—
	8	—

Table 8: Pin assignment of the V.24 interface

Note: For information about the position on the device see"View from below" on page 21.
You will find the order number for the terminal cable, which is ordered separately, in the Technical Data section (see on page 43 "Technical data").

1.8.2 SD card interface

The SD card interface allows you to connect the AutoConfiguration Adapter ACA31 storage medium. This is used for saving/loading the configuration data and diagnostic information, and for loading the software.

Note: For information about the position on the device see"View from above" on page 22.
On the front of the device there is an LED display that informs you about the status of the interface.
Only use Hirschmann SD cards.

1.8.3 USB interface

The USB socket provides an interface for the local connection of an AutoConfiguration Adapter. It is used for saving/loading the configuration and for loading the software.
In software version 02.0, the device does not support the ACA21.

The USB interface has the following properties:
- Supplies current of max. 500 mA
- Voltage not potential-separated
- Connectors: type A
- Supports the USB master mode
- Supports USB 2.0

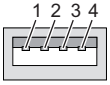
Figure	Pin	Operation
	1	VCC (VBus)
	2	− Data
	3	+ Data
	4	Ground (GND)

Table 9: Pin assignment of the USB interface

Note: For information about the position on the device see"View from below" on page 21.

1.9 Input/output interfaces

1.9.1 Signal contact

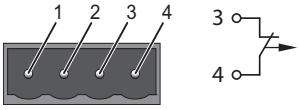
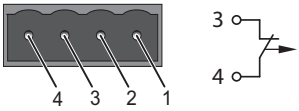
Figure	Pin	Function
Connection for voltage supply with a signal contact P1		
	1	Plus terminal of the supply voltage
	2	Minus terminal of the supply voltage
	3	**FAULT**
	4	**FAULT**
Connection for voltage supply with a signal contact P2		
	1	Plus terminal of the supply voltage
	2	Minus terminal of the supply voltage
	3	**FAULT**
	4	**FAULT**

Table 10: Pin assignment of the 4-pin terminal block for connecting the signal contact

In the state on delivery, the signal contact indicates the device status. It can be configured using the device management.

Note: For information about the position on the device see"View from below" on page 21.

1.9.2 Digital input

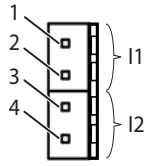
Figure		Pin	Signal, terminal	Function
	Input 1 (I1)	1	IN-1	Signal input, channel 1
		2	IN-1-GND	Reference potential, channel 1
	Input 2 (I2)	3	IN-2	Signal input, channel 2
		4	IN-2-GND	Reference potential, channel 2

Table 11: Pin assignment of the input interface

Note: For information about the position on the device see"View from below" on page 21.

2 Installation

The devices have been developed for practical application in a harsh industrial environment.
Hirschmann supplies the device ready for operation.

The following steps should be performed to install and configure a device:

- Unpacking and checking the content of the package
- Installing the SD card (optional)
- Installing and grounding the device
- Connecting the terminal blocks
- Installing terminal blocks, switching on the supply voltage
- Installing media modules

2.1 Unpacking and checking the content of the package

☐ Check whether the package includes all items named in section “Scope of delivery” on page 53.
☐ Check the individual parts for transport damage.

2.2 Installing the SD card (optional)

☐ Deactivate the write protection on the SD card.
☐ Push the SD card into the slot with the serration facing downwards.
☐ Tighten the knurled screw to ensure that the SD card does not fall out.

Note: For information about the position on the device see“View from above” on page 22.
Only use the AutoConfiguration Adapter ACA31 storage medium.
See “Accessories” on page 53.

2.3 Installing and grounding the device

⚠ WARNING

FIRE HAZARD

Install the device in a fire protected enclosure according to EN 60950-1.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

RISK OF BURNING

Only install the device at ambient temperatures greater than 113 °F (45 °C) in “operating sites with restricted access” based on EN 60950-1.

The surfaces of the device housing may become hot. Avoid touching the device while it is operating.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

When you are selecting the installation location, make sure you observe the climatic threshold values specified in the technical data.
Prevent heat from the surroundings from affecting the device.

2.3.1 Installing the device onto the DIN rail

Note: Verify that there is at least 4 in (10 cm) of space above and below the device.

Proceed as follows:

☐ Install the device on a horizontally mounted 1.38 inch (35 mm) DIN rail in accordance with DIN EN 60715.

☐ Insert the upper snap-in guide of the device into the DIN rail and press the device down against the DIN rail until it snaps into place.

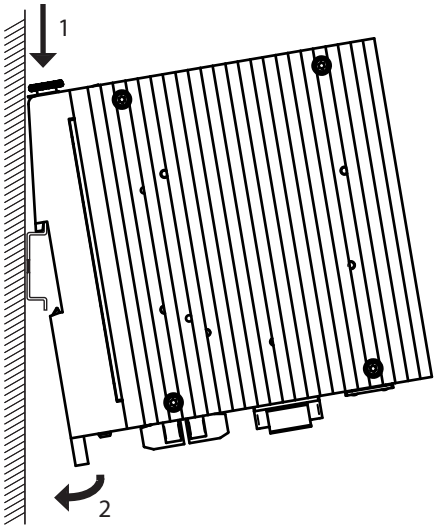


Figure 2: Mounting on the DIN rail

2.3.2 Grounding the device

The device is grounded via the separate ground screw on the bottom right of the bottom of the device.
Both power supply unit variants have a function ground.

☐ Connect the grounding to the ground screw of the device.

Note: For information about the position on the device see"View from below" on page 21.

2.4 Connecting the terminal blocks

⚠ WARNING

ELECTRIC SHOCK

Solely connect a supply voltage that corresponds to the type plate of your device.

Ground the device before connecting the power supply. Disconnect the grounding last.

Never insert sharp objects (small screwdrivers, wires, etc.) into the connection terminals for the supply voltage, the signal contact or the input, and do not touch the terminals!

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Note: The supply voltage is only connected with the chassis via protective elements.

2.4.1 Operating voltage characteristic value C

You have the option to supply the supply voltage redundantly, with no load distribution.
Both inputs are separate from one another.

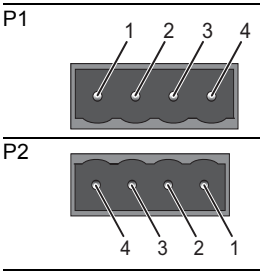


Table 12: Operating voltage characteristic value C: two 4-pin terminal blocks

Type of the voltages that can be connected	Size of the supply voltage	Pin	Terminal block	Connections
DC voltage	Nominal voltage range DC: 24 V ... 48 V Voltage range DC incl. maximum tolerances: 18 V ... 60 V	1	P1	Plus terminal of the supply voltage
		1	P2	
		2	P1	Minus terminal of the supply voltage
		2	P2	

Table 13: Operating voltage characteristic value C: type and specification of the supply voltage, connections

For **every** supply voltage to be connected, perform the following steps:

WARNING

ELECTRIC SHOCK

Only start connecting the supply voltage if **all** the above requirements are fulfilled.
See “Supply voltage” on page 5.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

☐ Remove the power connector from the device.
☐ Connect the lines for the supply voltage to the + and - terminals.
With non-redundant supply of the mains voltage, the device reports a power failure. You can avoid this message by changing the configuration in the management, or, with power supply units of the same type, by feeding the supply voltage in through both inputs.

2.4.2 Operating voltage characteristic value P

You have the option to supply the supply voltage redundantly, with no load distribution.
Both inputs are separate from one another.

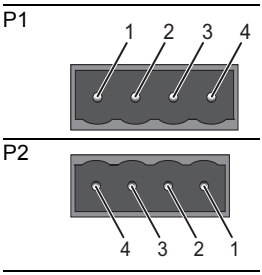


Table 14: Operating voltage characteristic value P: two 4-pin terminal blocks

Type of the voltages that can be connected	Size of the supply voltage	Pin	Terminal block	Connections
Device variants with PoE: DC voltage	Nominal voltage DC: 48 V Voltage range DC incl. maximum tolerances: 45 V ... 57 V	1	P1	Plus terminal of the supply voltage
		1	P2	
		2	P1	Minus terminal of the supply voltage
		2	P2	
Device variants with PoE Plus: DC voltage	Nominal voltage DC: 54 V Voltage range DC incl. maximum tolerances: 51 V ... 57 V	1	P1	Plus terminal of the supply voltage
		1	P2	
		2	P1	Minus terminal of the supply voltage
		2	P2	

Table 15: Operating voltage characteristic value P: type and specification of the supply voltage, connections

To connect supply voltage, perform the following steps:

⚠ WARNING

ELECTRIC SHOCK

Only start connecting the supply voltage if **all** the above requirements are fulfilled.
See “Supply voltage” on page 5.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

☐ Remove the power connector from the device.
☐ Connect the protective conductor according to the pin assignment on the device with the terminal. Tighten the screws of the terminal.
☐ Connect the lines for the supply voltage to the + and - terminals.

2.4.3 Signal contact

For every signal contact to be connected, make sure the following requirements are met:

- The lines to be connected are voltage-free.
- The connected voltage is limited by a current limitation device or a fuse. Observe the electrical threshold values for the signal contact.
  See “General technical data” on page 43.

☐ Connect the signal contact lines to the terminal block.

2.5 Connecting the ferrite

Note: Applies exclusively for MSP30/32-0804 with certifications for marine applications.

To adhere to EMC conformity, you connect the ferrite supplied to the voltage input via the voltage supply line.

☐ Insert the voltage supply line through the ferrite 3 times.
☐ Position the ferrite as close as possible to the voltage input (max. distance 19.7 inches (50 cm)).
☐ Lock the ferrite.

Note: To open the ferrite use the key supplied.

Figure 3: Connecting the ferrite to the voltage supply line

2.6 Installing terminal blocks, switching on the supply voltage

Note: Relevant for North America:
The torque for tightening the supply voltage terminal block on the device is 4.5 lb in (0.51 Nm).
The torque for tightening the signal contact and input terminal block on the device is 3 lb-in (0.34 Nm).

☐ Use screws to secure the connecters to the device.
☐ Switch on the supply voltage.

2.7 Installing media modules

Hirschmann supplies the media modules ready for operation.
You have the option to mount the media modules while the device is operating.
Proceed as follows:
☐ Remove the protective cap from the slot of the basic module.
☐ Insert the latch on the bottom of the media module into the opening in the lower positioning bar of the basic module.
☐ Press the media module against the basic module until the latch on the top of the media module snaps into the upper female multipoint connector.
☐ Fasten the media modules with 2 screws in the backplane.

Note: With certification type “Z9” you can omit using screws to fasten the media module.

See “Device name and product code” on page 14.

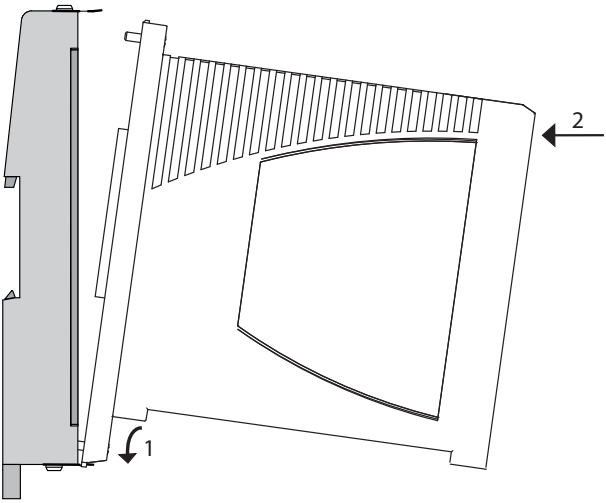


Figure 4: Mounting a media module

Note: For information about the position on the device see“Front view” on page 20.

3 Basic Settings

The IP parameters must be entered when the device is installed for the first time. The device provides the following options for configuring IP addresses:

- AutoConfiguration Adapter
- Entry using the HiDiscovery protocol via the application HiDiscovery or Industrial HiVision
- Entry via V.24 connection
- Configuration via BOOTP
- Configuration via DHCP (Option 82)

Further information on the basic settings of the device can be found in the “Basic Configuration” user manual on the CD/DVD.

Default settings

- Ethernet ports: link status is not evaluated (signal contact)
- IP address: The device looks for the IP address using DHCP
- Optical ports: Full duplex
  TP ports: Autonegotiation
- Management password:
  user, password: public (read only)
  admin, password: private (read/write)
- Rapid Spanning Tree Protocol: activated
- V.24 data rate: 9,600 Baud

Monitoring the ambient air temperature

Only operate the device up to the specified maximum ambient air temperature.
See “General technical data” on page 43.

The ambient air temperature is the temperature of the air at a distance of 2 in (5 cm) from the device. It depends on the installation conditions of the device, e.g. the distance from other devices or other objects, and the output of neighboring devices.
The temperature displayed in the CLI and the GUI is the internal temperature of the device. It is up to 68 °F (20 °C) higher than the ambient temperature. This depends on the configuration of your device.

4 Maintenance and service

- When designing this device, Hirschmann largely avoided using wear parts. The parts subject to wear and tear are dimensioned to last longer than the lifetime of the product when it is operated normally. Operate this device according to the specifications (see on page 43 “Technical data”).
- Relays are subject to natural wear. This wear depends on the frequency of the switching operations. Check the resistance of the closed relay contacts and the switching function depending on the frequency of the switching operations.
- Hirschmann is continually working to improve and develop our software. You should regularly check whether there is a new version of the software that provides you with additional benefits. You will find software information and downloads on the product pages of the Hirschmann website.
- Depending on the degree of pollution in the operating environment, check at regular intervals that the ventilation slots in the device are not obstructed.

Note: You will find information about the complaints and returns procedures in the Internet under
http://www.beldensolutions.com/en/Service/Repairs/index.phtml .

5 Disassembly

5.1 Removing media modules

You have the option to remove the media modules while the device is operating.
Proceed as follows:

☐ Disconnect the data lines.
☐ Insert a screwdriver between the female multipoint connector and the media module.
☐ Use the screwdriver to carefully lever the female multipoint connector away from the media module and pull the media module out of the slot.

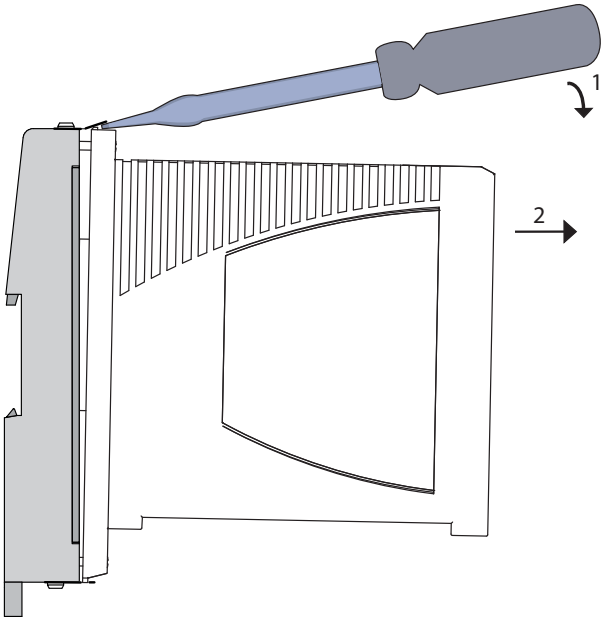


Figure 5: Removing a media module

Note: For information about the position on the device see“Front view” on page 20.

5.2 Removing the device

WARNING

ELECTRIC SHOCK

Disconnect all other connections before you disconnect the ground.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Proceed as follows:
- ☐ Switch off the supply voltage.
- ☐ Disconnect the data lines.
- ☐ Disconnect the terminal blocks.
- ☐ Disconnect the grounding.
- ☐ Insert a screwdriver horizontally below the housing into the locking gate.
- ☐ Without tilting the screwdriver, pull the locking gate down and tilt the device upwards.

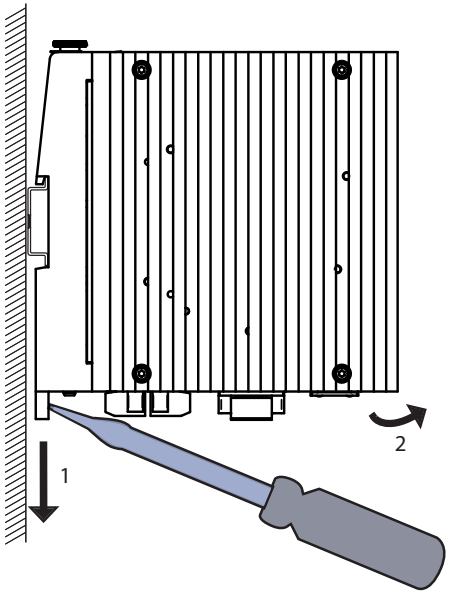


Figure 6: Removing the basic module from the DIN rail

6 Technical data

General technical data

Dimensions W × H × D	MSP30-0804...	12.01 in × 12.01 in × 0.59 in (236.6 mm × 148 mm × 141.8 mm)	
	MSP32-0804...	12.01 in × 12.01 in × 0.59 in (236.6 mm × 148 mm × 141.8 mm)	
	MSP30-1604...	12.01 in × 12.01 in × 0.59 in (313.8 mm × 148 mm × 141.8 mm)	
	MSP32-1604...	12.01 in × 12.01 in × 0.59 in (313.8 mm × 148 mm × 141.8 mm)	
	MSP30-2404...	12.01 in × 12.01 in × 0.59 in (391 mm × 148 mm × 141.8 mm)	
	MSP32-2404...	12.01 in × 12.01 in × 0.59 in (391 mm × 148 mm × 141.8 mm)	
Weight	MSP30-0804...	4.6 lb (2.1 kg)	
	MSP32-0804...	4.6 lb (2.2 kg)	
	MSP30-1604...	5.3 lb (2.4 kg)	
	MSP32-1604...	5.5 lb (2.5 kg)	
	MSP30-2404...	2.65 kg	
	MSP32-2404...	6.1 lb (2.75 kg)	
Operating voltage characteristic value C	Rated voltage range DC	24 V ... 48 V	
	Voltage range DC incl. maximum tolerances	18 V ... 60 V	
	Connection type	4-pin terminal block	
	Power failure bypass	> 10 ms at 20.4 V DC (applies only to the basic module)	
	Overload current protection at input	Non-replaceable fuse	
	Back-up fuse	Nominal rating:	6.3 A
		Characteristic:	slow blow
	Peak inrush current	< 5 A	
Operating voltage characteristic value P	Nominal voltage DC	Device variants with PoE:	48 V
		Device variants with PoE Plus:	54 V
	Voltage range DC incl. maximum tolerances	Device variants with PoE:	45 V ... 57 V
		Device variants with PoE Plus:	51 V ... 57 V
	Max. PoE power	124 W	
	Connection type	4-pin terminal block	
	Power failure bypass	> 10 ms at 20.4 V DC (applies only to the basic module)	
	Overload current protection at input	Non-replaceable fuse	
	Back-up fuse	Nominal rating:	6.3 A
		Characteristic:	slow blow
	Peak inrush current	< 5 A	

Climatic conditions during operation	Ambient temperature	Devices with operating temperature characteristic value S (standard): +32 °F ... +140 °F (0 °C ... +60 °C) [1]
		Devices with operating temperature characteristic value E and T (extended): −40 °F ... +158 °F (−40 °C ... +70 °C) [2] −40 °F ... +185 °F (−40 °C ... +85 °C) for 16 hours (tested in accordance with IEC 60068-2-2) [3]
		under UL conditions: max. +140 °F (+60 °C)
	Humidity	5 % ... 95 % (non-condensing)
	Air pressure	minimum 700 hPa (≈ +9842 ft (+3000 m)) maximum 1060 hPa (≈ −1312 ft (−400 m))
Climatic conditions during storage	Ambient temperature	−40 °F ... +185 °F (−40 °C ... +85 °C)
	Humidity	5 % ... 95 % (non-condensing)
	Air pressure	minimum 700 hPa (≈ +9842 ft (+3000 m)) maximum 1060 hPa (≈ −1312 ft (−400 m))
“FAULT” signal contact	Switching current	max. 1 A, SELV
	Switching voltage	max. 60 V DC or max. 30 V AC, SELV
		under UL conditions: max. 30 V DC, ohmic load
Pollution degree		2
Protection classes	Laser protection	Class 1 in compliance with IEC 60825-1
	Degree of protection	IP 20

1. Hirschmann recommends to use SFP transceivers with the "EEC" extension.
2. Only use SFP transceivers with the “EEC” extension, otherwise the standard temperature range applies.
3. Only use SFP transceivers with the “EEC” extension, otherwise the standard temperature range applies.

Digital input

Maximum permitted input voltage range	−32 V DC … +32 V DC
Nominal input voltage	+24 V DC
Input voltage, low level, status "0"	-0.3 V DC … +5.0 V DC
Input voltage, high level, status "1"	+11 V DC … +30 V DC
Maximum input current at 24 V input voltage	15 mA
Input characteristic according to IEC 61131-2 (current-consuming)	Type 3

Note: For the pin assignment see “Digital input” on page 29.

Dimension drawings

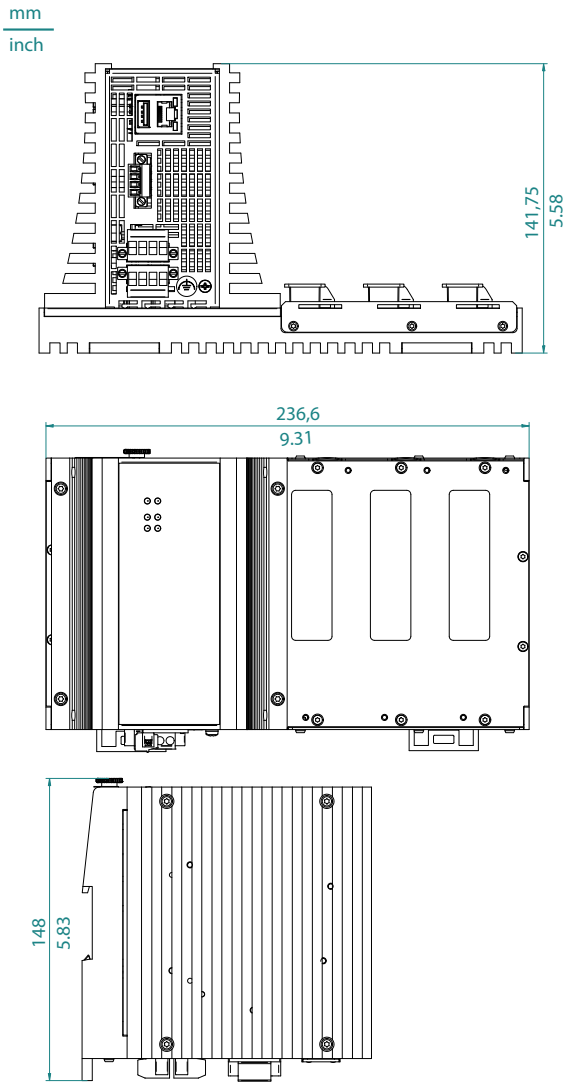


Figure 7: Dimensions of device variants MSP30/32-0804...

See “Device name and product code” on page 14.

mm
inch

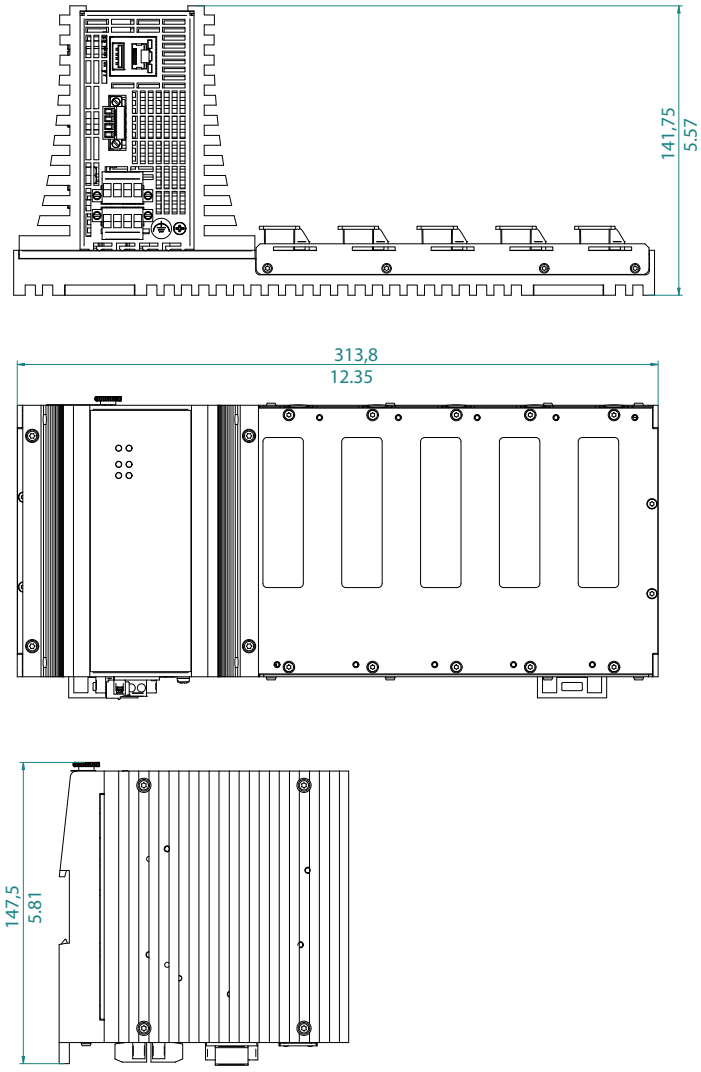


Figure 8: Dimensions of device variants MSP30/32-1604...

See “Device name and product code” on page 14.

mm
inch

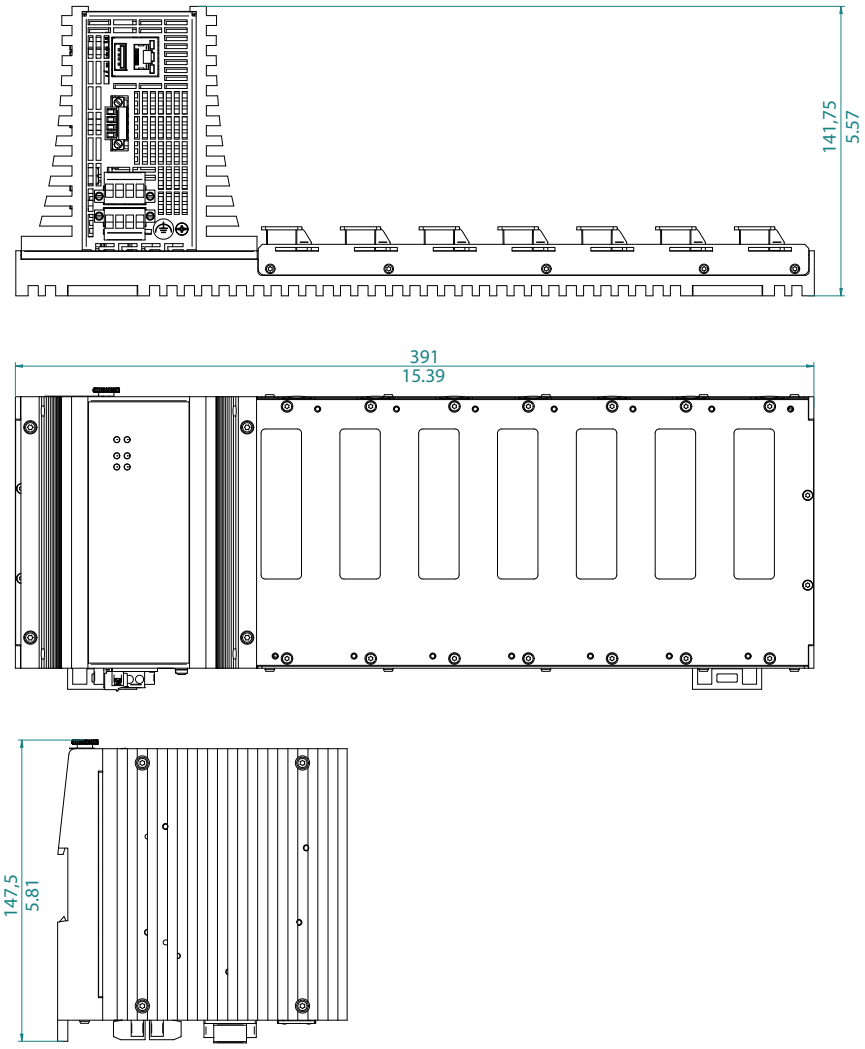


Figure 9: Dimensions of device variants MSP30/32-2404...

See “Device name and product code” on page 14.

EMC and immunity

EMC interference emission		Standard applications[1]	Merchant Navy [2]	Railway applications (trackside) [3]	Substation applications [4]
Radiated emission					
EN 55022		Class A	Class A	Class A	Class A
GL Guidelines		—	EMC 1	—	—
FCC 47 CFR Part 15		Class A	Class A	Class A	Class A
EN 61000-6-4		Fulfilled	Fulfilled	Fulfilled	Fulfilled
Conducted emission					
EN 55022	DC supply connection	Class A	Class A	Class A	Class A
GL Guidelines	DC supply connection	—	EMC 1	—	—
FCC 47 CFR Part 15	DC supply connection	Class A	Class A	Class A	Class A
EN 61000-6-4	DC supply connection	Fulfilled	Fulfilled	Fulfilled	Fulfilled
EN 55022	Telecommunication connections	Class A	Class A	Class A	Class A
EN 61000-6-4	Telecommunication connections	Fulfilled	Fulfilled	Fulfilled	Fulfilled

1. EN 61131-2, CE, FCC – applies to all devices
2. Merchant Navy – applies to devices with the certification codes VU, U9, UY, UW, UX
3. EN 50121-4 – applies to devices with the certification codes VT, T9, TY
4. EN 61850-3, IEEE 1613 – applies to devices with the certification codes V9, VY, VU, VT

EMC interference immunity		Standard applications[1]	Merchant Navy [2]	Railway applications (trackside) [3]	Substation applications [4]
Electrostatic discharge					
EN 61000-4-2 IEEE C37.90.3	Contact discharge	± 4 kV	± 6 kV	± 6 kV	± 8 kV
EN 61000-4-2 IEEE C37.90.3	Air discharge	± 8 kV	± 8 kV	± 8 kV	± 15 kV
Electromagnetic field					
EN 61000-4-3	80 MHz ... 3000 MHz	10 V/m	10 V/m	20 V/m	10 V/m

EMC interference immunity		Standard applications[1]	Merchant Navy [2]	Railway applications (trackside) [3]	Substation applications [4]
IEEE 1613	80 MHz ... 1000 MHz	—	—	—	35 V/m
Fast transients (burst)					
EN 61000-4-4 IEEE C37.90.1	DC supply connection	± 2 kV	± 2 kV	± 2 kV	± 4 kV
EN 61000-4-4 IEEE C37.90.1	Data line	± 4 kV	± 4 kV	± 2 kV	± 4 kV
Voltage surges - DC supply connection					
EN 61000-4-5	line/ground	± 2 kV	± 2 kV	± 2 kV	± 2 kV
IEEE 1613	line/ground	—	—	—	± 5 kV
EN 61000-4-5	line/line	± 1 kV	± 1 kV	± 1 kV	± 1 kV
Voltage surges - data line					
EN 61000-4-5	line/ground	± 1 kV	± 1 kV	± 2 kV	± 2 kV
Conducted disturbances					
EN 61000-4-6	150 kHz ... 80 MHz	10 V	10 V	10 V	10 V

EMC interference immunity		Standard applications[1]	Merchant Navy [2]	Railway applications (trackside) [3]	Substation applications [4]
Damped vibration – DC supply connection					
EN 61000-4-12 IEEE C37.90.1	line/ground	—	—	—	2.5 kV
EN 61000-4-12 IEEE C37.90.1	line/line	—	—	—	1 kV
Damped oscillation - data line					
EN 61000-4-12 IEEE C37.90.1	line/ground	—	—	—	2.5 kV
EN 61000-4-12	line/line	—	—	—	± 1 kV
Pulse magnetic fields					
EN 61000-4-9		—	—	300 A/m	—

1. EN 61131-2, CE, FCC – applies to all devices
2. Merchant Navy – applies to devices with the certification codes VU, U9, UY, UW, UX
3. EN 50121-4 – applies to devices with the certification codes VT, T9, TY
4. EN 61850-3, IEEE 1613 – applies to devices with the certification codes V9, VY, VU, VT

Stability		Standard applications[1]	Merchant Navy [2]	Railway applications (trackside) [3]	Substation applications [4]
IEC 60068-2-6, test Fc	Vibration	5 Hz ... 8.4 Hz with 0.14 in. (3.5 mm) amplitude	2 Hz ... 13.2 Hz with 0.04 in. (1 mm) amplitude	—	2 Hz ... 9 Hz with 0.04 in. (3 mm) amplitude
		8,4 Hz ... 150 Hz with 0.04 oz (1 g)	13.2 Hz with 0.03 oz (0.7 g)	—	9 Hz ... 200 Hz with 0.04 oz (1 g)
		—	—	—	200 Hz ... 500 Hz with 0.05 oz (1.5 g)
IEC 60068-2-27, Test Ea	Shock	0.53 oz (15 g) at 11 ms	—	—	0.35 oz (10 g) at 11 ms

1. EN 61131-2, CE, FCC – applies to all devices
2. Merchant Navy – applies to devices with the certification codes VU, U9, UY, UW, UX

3. EN 50121-4 – applies to devices with the certification codes VT, T9, TY
4. EN 61850-3, IEEE 1613 – applies to devices with the certification codes V9, VY, VU, VT

Power consumption/power output

Device name	Maximum power consumption[1]	Power output
MSP30-0804...	16.0 W	55.0 BTU (IT)/h
MSP30-1604...	17.0 W	58.0 BTU (IT)/h
MSP30-2404...	18.0 W	61.0 BTU (IT)/h
MSP32-0804...	17.0 W	58.0 BTU (IT)/h
MSP32-1604...	18.0 W	61.0 BTU (IT)/h
MSP32-2404...	19.0 W	65.0 BTU (IT)/h

1. The total power consumption is made up of the power to the basic module and the power to the media modules used.

Scope of delivery

Number	Article
1 ×	4-pin terminal block for digital input
1 ×	Installation user manual
1 ×	CD/DVD with manual
1 ×	Device (backplane and power module)
2 ×	4-pin terminal block for supply voltage

Accessories

Designation	Order number
AutoConfiguration Adapter ACA 31	942 074-001
Network management software Industrial HiVision	943 156-xxx
Terminal cable: RJ45 on USB	942 096-001
Terminal cable: RJ45 on Sub-D, 9-pin	942 097-001
Gigabit Ethernet SFP transceiver	**Order number**
M-SFP-SX/LC	943 014-001
M-SFP-SX/LC EEC	943 896-001
M-SFP-MX/LC	942 035-001
M-SFP-LX/LC	943 015-001
M-SFP-LX/LC EEC	943 897-001
M-SFP-LX+/LC	942 023-001
M-SFP-LX+/ LC EEC	942 024-001
M-SFP-LH/LC	943 042-001
M-SFP-LH/LC EEC	943 898-001
M-SFP-LH+/LC	943 049-001
Bidirectional Gigabit Ethernet SFP transceiver	**Order number**
M-SFP-BIDI Type A LX/LC EEC	943 974-001
M-SFP-BIDI Type B LX/LC EEC	943 974-002
M-SFP-BIDI Type A LH/LC EEC	943 975-001
M-SFP-BIDI Type B LH/LC EEC	943 975-002
M-SFP-BIDI Bundle LX/LC EEC (type A + B)	943 974-101
M-SFP-BIDI Bundle LH/LC EEC (type A + B)	943 975-101

Fast Ethernet SFP transceiver	Order number
M-FAST SFP-TX/RJ45[1 2]	942 098-001
M-FAST SFP-MM/LC	943 865-001
M-FAST SFP-MM/LC EEC	943 945-001
M-FAST SFP-SM/LC	943 866-001
M-FAST SFP-SM/LC EEC	943 946-001
M-FAST SFP-SM+/LC	943 867-001
M-FAST SFP-SM+/LC EEC	943 947-001
M-FAST SFP-LH/LC	943 868-001
M-FAST SFP-LH/LC EEC	943 948-001

1. Usable with HiOS, software version 03.0., and Classic Software, software version 08.0.
2. SFP transceiver supports PRP as the redundancy protocol exclusively.

Note: Some products recommended as accessories do not support the entire temperature range specified for the device and can thus restrict the possible range of usage for the overall system.

Underlying norms and standards

Description	
CSA C22.2 No. 142	Canadian National Standard(s) – Process Control Equipment Industrial Products
EN 50121-4	Railway applications – EMC – emitted interference and interference immunity for signal and telecommunication systems
EN 55022	IT equipment – radio interference characteristics
EN 60950-1	Safety for the installation of IT equipment
EN 61000-6-2	Generic norm – immunity in industrial environments
EN 61131-2	Programmable logic controllers
FCC 47 CFR Part 15	Code of Federal Regulations
Germanischer Lloyd	Classification and Construction Guidelines VI-7-3 Part 1 Ed.2003
IEC/EN 61850-3	Communications networks and systems in stations
IEEE 1613	Standard Environment and Testing Requirements for Communication Networking Devices in Electric Power Substations
IEEE 802.1AB	Station and Media Access Control Connectivity Discovery
IEEE 802.1D	Media Access Control Bridges
IEEE 802.1Q	Virtual Bridged Local Area Networks
IEEE 802.3	Ethernet
ISA 12.12.01	Nonincendive Electrical Equipment for Use in class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
NEMA TS 2	Traffic Controller Assemblies with NTCIP Requirements (environmental requirements)
UL 508	Safety for Industrial Control Equipment

Table 16: List of norms and standards

The device has a certification based on a specific standard or de facto standard solely if the certification indicator appears on the housing.
If your device has a shippingcertification according to Germanischer Lloyd, the certification mark can be found printed on the device label. You will find out whether your device has other shipping certifications on the Hirschmann website under www.hirschmann.com in the product information.
The device generally fulfills the norms and standards named in their current versions.

A Further Support

Technical Questions

For technical questions, please contact any Hirschmann dealer in your area or Hirschmann directly.

You will find the addresses of our partners on the Internet at
http://www.hirschmann.com

Contact our support at
https://hirschmann-support.belden.eu.com

You can contact us

in the EMEA region at
- Tel.: +49 (0)1805 14-1538
- E-mail: hac.support@belden.com

in the America region at
- Tel.: +1 (717) 217-2270
- E-mail: inet-support.us@belden.com

in the Asia-Pacific region at
- Tel.: +65 6854 9860
- E-mail: inet-ap@belden.com

Hirschmann Competence Center

The Hirschmann Competence Center is ahead of its competitors:

- Consulting incorporates comprehensive technical advice, from system evaluation through network planning to project planning.
- Training offers you an introduction to the basics, product briefing and user training with certification.
  The current technology and product training courses can be found at
  http://www.hicomcenter.com
- Support ranges from the first installation through the standby service to maintenance concepts.

With the Hirschmann Competence Center, you have decided against making any compromises. Our client-customized package leaves you free to choose the service components you want to use.
Internet:
http://www.hicomcenter.com

HIRSCHMANN

A BELDEN BRAND